

IN THE CLAIMS:

Complete listing of the claims

Claim 1. (Currently amended) A semiconductor device characterized in that an interface layer, a diffusion suppressing layer and a high dielectric constant insulating film are sequentially formed in this order on one surface of a silicon substrate; and
the interface layer comprises an oxide of silicon formed so as to be mutually diffused with the silicon substrate, and a high dielectric constant metal element.

Claim 2. (Currently amended) A semiconductor device as in claim 1, wherein the interface layer ~~have~~ has an equivalently converted SiO₂ thickness of 1.0 nm or smaller.

Claim 3. (Currently amended) A semiconductor device as in claim 1, wherein a high dielectric constant metal constitutional element in the constitutional element of the high dielectric constant insulating film is made the same as a part of the constitutional elements high dielectric constant constitutional element in ~~of~~ the interface layer.

Claim 4. (Currently amended) A method for manufacturing a semiconductor device ~~characterized by~~ comprising:
forming, an initial layer on one surface of a silicon substrate, an initial layer which is a high dielectric constant metal element film for being mutually diffused with silicon in the silicon substrate;

forming a diffusion suppressing layer on the surface of the initial layer;

performing heat treatment to allow the high dielectric constant metal element film of the initial layer to ~~become an interface layer~~ be mutually diffused with silicon in the silicon

substrate, thereby forming an interface layer; and

forming a high dielectric constant insulating film on the surface of the diffusion suppressing layer;

wherein the interface layer comprises an oxide of silicon.

Claim 5. (Currently amended) A method for manufacturing a semiconductor device ~~characterized by comprising:~~

Forming, ~~an initial layer~~ on one surface of a silicon substrate, an initial layer which is a high dielectric constant metal element film for being mutually diffused with silicon in the silicon substrate;

forming a diffusion suppressing layer on the surface of the initial layer;

forming a high dielectric constant insulating film on the surface of the diffusion suppressing layer; and

_____performing heat treatment to allow the high dielectric constant metal element film of the initial layer to become an interface layer ~~be~~ mutually diffused with silicon in the silicon substrate, thereby forming an interface layer;

_____ wherein the interface layer comprises an oxide of silicon.

Claim 6. (Currently amended) A semiconductor device as in claim 2, wherein a high dielectric constant metal constitutional element in the constitutional element of the high dielectric constant insulating film is made the same as a part of the constitutional elements ~~high dielectric constant constitutional element in~~ of the interface layer.